

## Jennifer B. Tennessen

The Pennsylvania State University  
Intercollege Graduate Degree Program in Ecology  
Department of Biology  
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### EDUCATION

- 2009 – **Ph.D. Candidate in Ecology.** Department of Biology, and Intercollege Graduate Degree Program in Ecology, Penn State University.  
*Co-advisors:* Dr. Tracy Langkilde and Dr. Susan Parks (Syracuse University)
- 2009 **M.S., Conservation Biology & Sustainable Development.** Nelson Institute for Environmental Studies, University of Wisconsin – Madison.  
*Advisor:* Dr. Stanley Temple. *Thesis title:* The effects of anthropogenic noise on the vocal behavior of southern resident killer whales (*Orcinus orca*).
- 2005 **B.S., Zoology, Biology, Certificate in Environmental Studies.**  
University of Wisconsin – Madison.

### GRANTS

- 2013 **Gaige Award, American Society for Ichthyology and Herpetology.** (\$500)
- Grants-in-Aid of Research, Sigma Xi, The Scientific Research Society.** (\$800)
- Frank A. Andersen Travel Award.** Competitive award given annually to “honor and recognize outstanding achievement” of an individual in the Penn State Ecology program. (\$500)
- 2012 – 2014 **National Science Foundation, Doctoral Dissertation Improvement Grant**  
T. Langkilde (PI), S. Parks & J. Tennessen (Co-PIs) (\$14,886)
- 2012 **E. O. Wilson Conservation Award, Animal Behavior Society.** Research grant awarded to one of the highest-ranked proposals that is considered “meritorious for its integration of behavior and conservation.” (\$2000)
- Student Travel Award, Animal Behavior Society.** Competitive NSF-supported award to travel to the 49<sup>th</sup> Annual Meeting of the Animal Behavior Society to present in the NSF-funded “President’s Symposium: Behavioral Plasticity & Conservation.” (\$500)
- Student Travel Grant, Biology Department, Penn State University** (\$250)
- 2011 **Student Travel Award, Society for Marine Mammalogy.** (\$500)
- Student Travel Award, Acoustical Society of America.** (\$160)

- 2009      **Student Travel Award**, Society for Marine Mammalogy. (\$500)
- 2007      **Student Travel Grant**. Nelson Institute for Environmental Studies, University of Wisconsin - Madison. Two-time recipient. (\$400)

## FELLOWSHIPS, HONORS AND AWARDS

- 2013      **J. Brian Horton Memorial Award**, Ecology Program, Penn State University. For recognition of “outstanding achievement and service to the graduate community.” (\$1,500)
- 2011 – 2014 **Academic Computing Fellowship**, Penn State University. Three-year fellowship held by a maximum of 5 graduate students university-wide at one time, whose research uses novel computing techniques to solve problems within their disciplines. (\$75,000)
- 2010      **Member, Sigma Xi, The Scientific Research Society**. Inducted as a member.
- 2009      **University Graduate Fellowship**, Penn State University. Awarded to “graduate students of the very highest caliber.” (\$22,500)
- Seaspace Scholarship (declined)**
- 2007      **Alternate, Doris Duke Fellowship**, University of Wisconsin – Madison.
- Featured Student**, Nelson Inst. for Env. Studies website. Research profiled as an “outstanding example” of graduate research being conducted within the Nelson Institute.
- Ruth Dickie Scholarship**. Sigma Delta Epsilon Chapter, Graduate Women in Science, University of Wisconsin – Madison. (\$3,000)
- 2005      **Dean’s List**. University of Wisconsin – Madison.
- 2004      **National Science Foundation Research Experience for Undergraduates Fellowship**, University of Wisconsin – Madison. (\$4,000)
- Inducted as member of Tri-Beta Biological Honor Society, Omega Pi chapter**. University of Wisconsin – Madison.

## PUBLICATIONS

**Tennessen, J.B.**, S.E. Parks & T.L. Langkilde. Noise activates the physiological stress response and impairs reproductive behavior in an amphibian. *In prep*.

**Tennessen, J.B.** & S.E. Parks. The acoustic adaptation hypothesis can explain variability in frequency characteristics of baleen whale vocalizations. *In prep*.

**Tennessen, J.B.** 2011. The relationship between anthropogenic noise and frequency contours of southern resident killer whale (*Orcinus orca*) stereotyped vocalizations. *The Journal of the Acoustical Society of America* 129 (4) 2607. [Abstract]

**Tennessen, J.B.** 2009. The effects of anthropogenic noise on the vocal behavior of southern resident killer whales (*Orcinus orca*). M.S. Thesis, University of Wisconsin-Madison.

Naughton, L.C.; Miller, J.E.; **Tennessen, J.B.** 2009. Self-Study Report of Conservation Biology and Sustainable Development Graduate Program. University of Wisconsin-Madison; Madison, WI.

## PROFESSIONAL PRESENTATIONS

### Invited Talks

- 2013 Penn State University, University Park, PA. **Research in the Langkilde Laboratory.** Guest lecture for upper-level Ecology course.
- 2012 Penn State University, University Park, PA. **Say What? Acoustics in Ecology.** Guest lecture for Biology 450W: Field Ecology
- Penn State University, University Park, PA. **Acoustic Ecology Laboratory.** Guest instructor for laboratory portion of Biology 450W: Field Ecology. Designed 4-hr hands-on lab activity to introduce upper-level undergraduates to principles of acoustic ecology.
- 2009 University of Wisconsin – Madison, Madison, WI. **Animal behavior and conservation: Visions for a shared future?** Guest lecture for Zoology 651: Conservation Biology. Course was composed of graduate students and upperclassmen majoring in biology-related disciplines. (February).
- Ripon College, Ripon, WI. **The effects of noise on the vocal behavior of endangered southern resident killer whales.** Psychology 251: Killer Whale Ethology. Course was composed of freshman through seniors, preparing for their culminating field trip to the San Juan Islands to study southern resident killer whale behavior and conservation. (April).
- 2007 University of Wisconsin – Madison, Madison, WI. **Overexploitation of species.** Zoology 360: Extinction of Species. Course was composed of upperclassmen majoring in biology-related disciplines. (October).

### Contributed Oral Presentations

- 2011 Annual Meeting of the North Atlantic Right Whale Consortium. New Bedford, MA. *Behavior of North Atlantic right whale mother-calf pairs.* Parks, S.E.; Van Parijs, S.; Conger, L; **Tennessen, J.B.** (November).
- 161<sup>st</sup> Meeting of the Acoustical Society of America. Seattle, WA. *The relationship between anthropogenic noise and frequency contours of southern resident killer whale (Orcinus orca) stereotyped vocalizations.* **Tennessen, J.B.** (May).
- 2009 Ecology Colloquium, Penn State University, University Park, PA. *Potential factors driving mother-calf North Atlantic right whale collisions with vessels.* **Tennessen, J.B.** (December).

### Contributed Poster Presentations

- 2012 97<sup>th</sup> Annual Meeting of the Ecological Society of America. Portland, OR. *Breeding season blues: Noise disrupts female wood frog attraction to a breeding chorus.* **Tennessen, J.B.,** S.E. Parks & T.L. Langkilde. (August)
- 49<sup>th</sup> Annual Meeting of the Animal Behavior Society. Albuquerque, NM. *Limitations to plasticity: The case of the southern resident killer whales.* **Tennessen, J.B. &** S.E. Parks. (June)
- 2011 19<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, Tampa, FL. *A propagation modeling approach to test predictions of the acoustic adaptation hypothesis for mysticete communication signals.* **Tennessen, J.B. &** S.E. Parks. (December).

- 2010 SeaBASS Workshop. Penn State University, University Park, PA. *Acoustic landscapes: Explorations of animals' competitive and physical interactions with biotic and anthropogenic sound*. **Tennessen, J.B.** (June).
- 2009 18<sup>th</sup> Biennial Conference on the Biology of Marine Mammals. Quebec City, Quebec, Canada. *Effects of anthropogenic noise on the vocal behavior of southern resident killer whales (Orcinus orca)*. **Tennessen, J.B.** (October).

## RESEARCH EXPERIENCE

- 2011 – 2014 **Academic Computing Fellow, Penn State University.** Recipient of a prestigious university fellowship to conduct dissertation research.
- 2010 – 2011 **Research Assistant, Marine Bioacoustics Lab, Penn State University.** Conducted passive acoustic and visual surveys for North Atlantic right whales in the Bay of Fundy and off the coast of Georgia and Florida; analyzed “D-tag”, single-hydrophone and towed-array acoustic recordings of North Atlantic right whales; modeled underwater acoustic propagation of marine mammal calls through various environments.  
*Dr. Susan Parks, Principal Investigator*
- 2008 **Research Technician, Marine Conservation Ecology Lab, Duke University Marine Laboratory.** Performed acoustic monitoring during vessel-based marine mammal surveys; assisted with bottlenose dolphin photo-identification; helped maintain and update the Mid-Atlantic Bottlenose Dolphin Catalog; prepared samples of pilot whale blubber genetic analysis; assisted with development of the new Society for Marine Mammalogy website; performed preliminary audits on pilot whale D-tag acoustic recordings.  
*Dr. Andrew Read, Principal Investigator*
- 2006 – 2009 **Graduate Student Researcher, Conservation Biology Lab, UW – Madison.** Conducted Master’s thesis research on killer whale conservation and acoustic behavior. Explored the effects of anthropogenic noise on vocal behavior of southern resident killer whales in the San Juan Islands, WA. *Dr. Stanley Temple, Principal Investigator*
- 2004 – 2005 **Lab Assistant, Animal Behavior and Neuroethology Lab, University of Wisconsin – Madison.** Performed hormone implantation and removal surgery on European starlings; monitored starling health and recovery post-surgery; assisted with song recording and behavioral observations, aided in analysis of song recordings.  
*Dr. Lauren Ritters, Principal Investigator*
- 2004 **Lab Assistant, Microbial Observatory, University of Wisconsin – Madison.** Continuation of NSF REU research through fall semester. Assisted with data processing, including counting algae, preparing samples for PCR, and data interpretation and analysis. *Dr. Linda Graham, Principal Investigator*
- 2003 – 2005 **Lab Assistant, River Ecology Lab, University of Wisconsin – Madison.** Assisted with study of nutrient cycling in wetlands; aided in fieldwork, sample collection, and lab analysis; performed chlorophyll, phosphorus, nitrate and nitrite analyses; ran samples using dry-oven, spectrophotometer, and gas chromatographer.  
*Dr. Emily Stanley, Principal Investigator*
- 2003 **Student Researcher, School for Field Studies' Marine Resource Management Course, Turks and Caicos Islands.** Used SCUBA techniques to assess coral reef

health; performed transect surveys of fish, algae, and coral species composition and abundance along coral reefs; collaborated with local community members to advocate for successful management of local marine resources.

2001 – 2003 **Lab Assistant, Chemistry Demonstration Lab, University of Wisconsin – Madison.** Prepared demonstrations for introductory chemistry courses; maintained chemical stock and solutions; helped improve demonstrations.

## TEACHING EXPERIENCE

2009 **Teaching Assistant, Zoology 651: Conservation Biology, University of Wisconsin – Madison.** Facilitated and led discussion sections for graduate students, coordinated garlic mustard removal project in local preserve, guest lectured in course, ran exam reviews, graded exams and essays, and served as webmaster for course. (1 semester)

2007 **Assistant Coordinator for Geography 434: People, Wildlife, and Landscapes, University of Wisconsin – Madison.** Assisted professor with organization of course, graded exams, coordinated guest lecturer visits. (1 semester)

**Teaching Assistant, Zoology 360: Extinction of Species, University of Wisconsin – Madison.** Taught principles of conservation biology and the underlying forces driving historical and contemporary species extinctions to undergraduate biology and non-biology majors. (1 semester)

2006 – 2008 **Teaching Assistant, Introductory Biology 152 Laboratory, University of Wisconsin – Madison.** Taught principles of ecology, conservation biology, and plant and animal physiology to undergraduate biology majors, ran lab activities, graded student research papers, lab reports and presentations. (4 semesters)

## PEER REVIEWER

### Journals

Behavioral Ecology, Journal of Zoology

## PROFESSIONAL SERVICE

2013 Presentation to members of ARCS (Achievement Results for College Students), on behalf of the Penn State Ecology Graduate Student Organization, to encourage continued support of the Ecology Program.

2012 – 2013 Co-Organizer, Ecology Spring Seminar Series, Penn State University. Invited and coordinated visits for 13 pre-eminent guest speakers presenting in the weekly graduate student-run spring seminar series, “Coping with Global Environmental Change.” Identified seminar series topic and coordinated logistics. Raised \$12,100 from 9 organizational units at Penn State University.

2011 – Vice President, Ecology Graduate Student Organization, Penn State University.

Andersen Award Committee, Ecology Program, Penn State University

2011 Graduate Student Representative, Ecology Graduate Student Organization, Penn State

- 2010 Social Chair, Ecology Graduate Student Organization, Penn State University
- 2004 – 2005 Treasurer, Limnology and Fisheries Society, University of Wisconsin - Madison

## OUTREACH ACTIVITIES

- 2013 **Judge, Undergraduate Research Poster Exhibition**, Penn State University. Evaluated the research quality and presentation of independent projects conducted by undergraduate students in life sciences.
- Presenter, Graduate Women in Science's Girl Scout Badge Workshop**. Designed and led activities about healthy food and local eating, to help middle school Girl Scouts earn their Locavore badge.
- 2012 **Presenter, Herpetology Educational Programming at the Discovery Space of Central Pennsylvania**. Helped lead activities to educate children about amphibians and reptiles.
- Judge, 78<sup>th</sup> Annual Pennsylvania Junior Academy of Science**. Judged science presentations by 7<sup>th</sup>, 11<sup>th</sup> & 12<sup>th</sup> grade students from Pennsylvania at the state-level competition.
- 2011 **Presenter, WPSU's "The Cat in the Hat Eventapalooza", Penn State University**. Designed and led activities about cat senses for kids in grades Pre-K – 8. The event was part of a community science outreach program.
- Presenter, Graduate Women in Science's Girl Scout Badge Workshop, Penn State University**. Designed and led activities about plant ecology and physiology to help middle school Girl Scouts earn a badge.
- Presenter, Science Exploration Day, Penn State University**. Designed and led hands-on ecological activities to increase science awareness and interest among kids and teenagers.
- 2010 **Presenter, Science Exploration Day, Penn State University**. Designed and led hands-on ecological activities to increase science awareness and interest among kids and teenagers.
- Presenter, Park Forest Middle School STEM Fair**. Led hands-on activities to inspire and encourage middle school students' interest in the natural sciences. Outreach was in conjunction with membership in Graduate Women in Science.
- 2008 **Presenter, Expanding Your Horizons Conference, University of Wisconsin – Madison**. Participated as presenter in conference aimed at retaining middle school girls' interest in science, math, and technology. Led two sessions for girls about marine mammal conservation, field research, and bioacoustics.
- 2007 **Coordinator, Marine Fisheries Sustainability Lecture, University of Wisconsin – Madison**. Headed an effort to raise awareness for ocean conservation issues in landlocked states. Organized, coordinated, fundraised for, and facilitated guest lecture at UW-Madison by Dr. Carl Safina about marine fisheries sustainability. More than 250 people attended the event. Also organized discussion session between Dr. Safina and graduate students at the Center for Limnology, UW-Madison.

2005 **Science Mentor for Girls in Science, Thoreau Elementary School, Madison, Wisconsin.** Worked in small groups with gifted science students, provided guidance, support, and direction for their class projects.

**Educational Volunteer, Education Department, Henry Vilas Zoological Society.** Led educational demonstrations and programs for school groups, families, and other visitors, using the zoo's collection of educational animals including a penguin, owl, hedgehog, cane toad, ball python, and macaw.

**Assistant Teacher, Winter Limnology Outreach Course, Center for Limnology, University of Wisconsin - Madison.** Assisted with the development, planning, preparation, and implementation of a winter aquatic science course for middle school students interested in aquatic sciences. Lessons included hands on labs, field trips, lectures, and classroom activities.

## ADDITIONAL PROFESSIONAL EXPERIENCE

2007 **Intern, Soundwatch Boater Education Program, The Whale Museum.** Provided on-the-water education to boaters regarding best practices for viewing marine mammals; monitored vessel activities around marine mammals; assisted with data collection on vessel behavior in vicinity of marine mammals.

**Marine Mammal Naturalist.** Led whale-watching tours in the San Juan Islands, WA. Educated the public about the geography and geology of the San Juan Islands, and the ecology of many species from the area including killer whales, minke whales, gray whales, harbor seals, sea lions, salmon, and many avian species.

2006 **Intern, Shedd Aquarium Marine Mammal Department.** Prepared daily fish diets for animals; performed routine observations and data collection of animal behavior; maintained clean habitats; assisted with general husbandry and care of cetaceans, pinnipeds, mustelids, and spheniscidaeans

2005 **High School Teacher, EXCEL High School, Oakland Unified School District.** Taught 5 sections of high school biology and one section of advisory, through the program Teach for America in Oakland, CA.

2005 **Middle School Life Science Summer School Teacher, Markham Middle School.** Taught seventh grade life science to summer school students in Watts, CA, through the program Teach for America.

2005 **Teach for America 2005 Corps Member.** Selected as one of approximately 2,000 teachers, out of pool of over 17,000, to teach biological sciences to middle school and high school students in inner-city schools.

## ADDITIONAL SKILLS AND EXPERIENCE

2007 **Participant, Sound Analysis Workshop, Bioacoustics Research Laboratory, Cornell University.** Attended week-long workshop; learned how to use bioacoustics analysis software including Raven and XBAT; learned principles of bioacoustics; gained hands-on experience using acoustic recording equipment.

- 2005      ***UCLA Extension Program: Certificate of completion***, “Teaching Advanced Placement Biology”
- 1999      ***PADI Open-Water SCUBA Certification***. Currently over twenty-five dives logged.

## **PROFESSIONAL AFFILIATIONS**

- 2012 –      American Society of Ichthyologists and Herpetologists  
              American Naturalist Society  
              Society for the Study of Amphibians and Reptiles
- 2011 –      Animal Behavior Society  
              Acoustical Society of America  
              Ecological Society of America  
              Sigma Delta Epsilon – Graduate Women in Science, National and Nu Chapters  
              Sigma Xi
- 2007 –      Society for Marine Mammalogy
- 2006 – 2009 Sigma Delta Epsilon – Graduate Women in Science, Beta Chapter
- 2004 – 2005 Beta Beta Beta Biological Honor Society, University of Wisconsin – Madison.